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of the pollen grains, those of the longer stamens being more than twice the diameter, or than eight times the mass, of the grains of the shorter stamens. Though minute these smaller grains seem as perfect as the larger, and in fact, if I am not greatly mistaken, in tearing the stigmas I more frequently found pollen tubes issuing from the smaller than from the larger. Still, as I was working with a simple dissecting microscope, I may be wrong about their being perfect. Both sets of anthers certainly drop their pollen about the same time and in the same manner, there being nothing of an appearance of immaturity in the lower. I do not know of another instance in which there is this difference of size in the pollen of the same flower, though, as Darwin has shown, in polymorphic plants there is a difference in the potency of the pollen; and where there are two kinds of flowers on the same plant, the pollen of those constructed for self fertilization is possessed of "preternatural instinct and activity."*

In one of the rolled up flowers there was the wing of an insect, seeming to show attraction for insects.

Pontederia ripens but one seed, and the question forces itself on the attention, To what purpose this vast multitude of pollen grains, and of two sorts? I did not succeed in finding pollen tubes in the style, and perhaps with my instrument should not have been able to distinguish them, though they were manifestly issuing from some grains taken from the stigmas. The floral organs including the style are beset with hairs or glands of a peculiar appearance, and the question presented itself to my friend Mr. Merriam (in the case of *Lobelia*) whether some of the excess of pollen grains may not be used in some way to nourish the pistil, exclusive of the extra number which it is now known are often required for direct fertilization through the stigma, or for attracting hungry insects.

My supply of the two other genera of this Order, native with us, *Heteranthera* and *Schollera* was too limited and imperfect to yield satisfactory results. *Heteranthera* gets its name from the striking difference in its anthers, and I thought I noticed a difference in the pollen, but wait for better specimens. W. H. L.

§ 63. *Coleanthus subtilis*, Siedel, or *Schmidtia utriculosa*, Sternb., is a rare little grass of very local occurrence and peculiar distribution. Steudel credits it only to Bohemia, but it has long been known in Norway. We have now received it at Cambridge from Mr. Joseph Howell, who collects it on Sauvier's Island in the Oregon River! In attestation whereof I send a specimen to the Torrey Club, through its distinguished agrostological President, and ask that it may go to the Torrey Herbarium A. GRAY.

§ 64. Publications.—1. In *Nature*, Sept. 23, is a notice of a Report of the Neilgherry Lorantheaceous parasites, in which Dr. Bidie, the author, is quoted as asserting that the Lorantheaceæ (Mistletoes) "derive their nutriment not from the descending elaborated, but from the crude ascending sap of the host; hence their need for green foliage containing chlorophyll and possessing stomata." "With reference to the mode of attachment between the parasite

*Dr. Gray, as reported in proceedings of Conn. Valley Bot. Soc., Oct. 6th, 1875.

and the host, the author states that although very firmly attached, there is no actual interlacing of the tissues; and that in some instances, after maceration in water for a few days, the parasite could be separated from the host without much difficulty." This accords pretty well with the appearance of a fine section of *Phoradendron flavescens* and its host shown us by Dr. T. F. Allen.—2. Connecticut Valley Botanical Society. *The Springfield Republican*, October 12th, contains an account of an interesting meeting of this active Association at Mount Holyoke Seminary, October 6th, President W. S. Clark in the chair. Dr. Gray was present, and, among other things, explained why the keel of *Apios tuberosa*, Moench, is never coiled in an unvisited blossom, though coiled one turn after being rifled by bees; the tip at first being lodged in a little sac at the apex of the standard. The president spoke on the lifting power of plant-growth. He had seen a Black Birch in York, Me., which without doubt has lifted twenty tons of rock. Prof. C. H. Hitchcock, "the discoverer of the new flume in the White Mountains," sent specimens of *Pinguicula vulgaris*, L., discovered by him on Mt. Willard last July. Miss Hitchcock brought *Asplenium Filix-femina*, var. *molle*. Miss Shattuck reports *Erythronium Americanum*, Smith, as propagating itself chiefly by underground shoots, seldom flowering in that region. Thanks were voted to Prof. Tuckerman and Mr. Frost for the Catalogue of Amherst plants, and to the former for his liberality in the publication.—3. *American Journal of Science and Arts*, Nov. Dr. Gray has an article on *Æstivation* and its Terminology, and approves of the use of terms as follows: I. With some pieces of the set wholly exterior in the bud to others, *imbricate*. II. With each piece covered at one margin, and covering by the other, *convolute*. III. With each piece squarely abutting against its neighbors on either side, without overlapping, *valvate*. And a notice of W. T. Thistleton Dyer's *Classification and Sexual Reproduction of Thallopiphytes* with Sachs "relegating to the past, *Algae*, *Fungi* and *Lichens*," as a classification.

§ 65. Character-Plants of Western Nicaragua.—The uncultivated lands are mostly wooded, trees of the genera *Bombax* and *Plumieria* and of the orders *Anonaceæ*, *Sapotaceæ*, and sub-order *Cæalpiueæ* largely preponderating. The shores of Lake Nicaragua are lined with a coarse species of Mahogany, the branches of which all grow to the south-west, accommodating themselves to the prevailing N. E. Trades. In the swamps, *Crescentia* is the most characteristic tree, in the dry season (with the exception of a few thorny *Acacias*) often the sole representative of vegetation. The undergrowth of the woods consists largely of *Mimoseæ* and *Bromeliaceæ*. By the road sides, *Poinciana pulcherrima*, *Vinca rosea* and other handsome *Apocynaceæ* abound. C. F.

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The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P. M. Botanists are invited to attend. DR. THURBER, the President of the Club, may be found at 245 Broadway.